# *In* CONTROL

*The Dental Infection Control/Safety Supplement to Dental Items of Significance*

NUMBER 17 May 2001

**TABLE OF CONTENTS**

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Well, we survived our first winter here at the Naval Training Center, Great Lakes, Illinois. December was a month to remember with thirty-two inches of snow (one of the snowiest Decembers in Chicago in decades). The coldest day of the year was 22 December ( -9° F), with a wind chill of -33° F. Needless to say, we wore our AF parkas a lot this winter. Fortunately spring has arrived, and we are looking forward to summer. It cannot come too soon. As I stated in the last issue of InControl:

Our new address is:

USAF Dental Investigation Service
Detachment 1, USAFSAM
310C B Street, Building 1H
Great Lakes Naval Training Center, IL 60088-5259

Our new phone and fax numbers are:

DSN 792-7676 DSN FAX 792-7667
COMMERCIAL (847) 688-7676 COMMERCIAL FAX (847) 688-7667

As always, you can contact me directly at DSN 792-7668 or Commercial at (847) 688-7668 or via e-mail at joseph.bartoloni@ndri.med.navy.mil

I will continue to keep you updated on the latest issues in infection control and occupational health and safety in dentistry through the publication of ***In*Control**.

**DENTAL INFECTION CONTROL AND OCCUPATIONAL HEALTH COURSE**

The United States Air Force has developed a partnership with the Organization for Safety and Asepsis Procedures (OSAP) to conduct the Dental Infection Control and Occupational Health Course. This course will be structured similarly to the USAF course that was conducted from 1994 to 1999. The course is tentatively scheduled to be held in the fall of 2001. At this time we are working out the location and curriculum. The course will be open to military and civilians who have an interest in dental infection control and occupational health and safety. I will be posting an announcement on our website at www.brooks.af.mil/dis when the final details have been worked out. Until then you can contact me directly for further information.

**2001 ORGANIZATION FOR SAFETY AND ASEPSIS PROCEDURES ANNUAL SYMPOSIUM**

The 2001 Organization for Safety and Asepsis Procedures Annual Symposium (OSAP) will be conducted from 14 to 17 June in Orlando, FL. The meeting will feature the latest information on dental infection control and office safety issues. This annual symposium offers a unique opportunity to exchange ideas with the top experts in the field of dental infection control and occupational health, and provides a wealth of information on new developments. Contact OSAP for information on membership and the upcoming symposium.

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**ERGONOMICS STANDARD**

On 20 March 2001, President Bush signed a repeal of the Occupational Safety and Health Administration (OSHA) Ergonomics Standard, which was scheduled to take effect on 14 October 2001. This Standard was developed to prevent or reduce musculoskeletal disorders associated with repetitive motion, awkward posture, contact stress, and other on-the-job conditions. The decision to repeal it was based on the regulation s costs-versus-benefits ratio. Both the American Dental Association (ADA) and the Academy of General Dentistry (AGD) had criticized the regulation due to its intrusiveness, cost, and a lack of scientific evidence that it was needed. In essence, this erases the ergonomics regulation as if it had never been issued (or taken effect) and bars the Department of Labor from issuing rules in substantially the same form. President Bush has asked Labor Secretary Elaine Chao to develop a less expensive alternative to address workplace safety, and she has promised to pursue this issue. Even though the Ergonomics Standard was repealed, all dental clinics should be aware that ergonomics is receiving more attention as it relates to the workplace. The following information is provided to inform you about how ergonomics comes into play in the dental field.

Ergonomics and Dentistry

Ergonomics is the study or science of workers and their adjustment or adaptation to their work environment or working conditions. Ergonomics has been of interest to workers in many occupations including dentistry. Many times, though, workers question the existence of risk factors associated with routine tasks and job hazards. Dental employers and employees can take measures to improve conditions within their own work areas including communication, education, and moderate corrective measures to protect against musculoskeletal disorders arising from repeated strain and stress in dentistry.

**The greatest number of ergonomic-related problems for dental workers occurs in the back, shoulder and neck**. Most of these problems are **postural** in nature, and are not directly related to the accomplishments of the tasks. These can be classified as sustained, nonforceful postural problems.

During the past several years, the dental profession, dental equipment manufacturers, ergonomists, and time-motion analysts have modified the design of dental equipment and instruments, changed the position of patients and practitioners with respect to each other, modified dental office design and the placement of equipment, and encouraged four-handed dentistry. It is important that educational efforts continue and expand to reduce posture-related problems in the dental clinic.

Some studies have shown that changes in the workplace environment, work routines, or in the way tasks are performed may be ineffective in preventing ergonomic-related disorders for certain individuals if they are overwhelmed by predisposing factors (i.e., personal habits). When ergonomic-related disorders in the dental office are considered, the following factors should be considered.

1. The incidence of ergonomically-related disorders reported by the employee. A large number of problems indicates a greater need for evaluation of the workplace.
2. A qualitative and quantitative job analysis should be accomplished to determine the ergonomic risk levels for dental workers who are performing routine tasks.
3. Tasks that prevent significant ergonomic risk should be identified.
4. Information should be correlated to determine the role the workplace is playing in causing the observed ergonomic-related disorders.
5. The following five areas need to be addressed to prevent and control disorders among dental workers: education, personal factors control, work site modification, job modifications, and research.

*Education*
All dental workers need to be taught sound ergonomic practices in the daily tasks performed in dentistry. This should be accomplished during initial employment and reviewed and updated periodically.

*Personal Factor Control*
Employees should be informed of the factors that can cause ergonomic-related disorders. This knowledge will enable the worker to reduce or eliminate factors under his/her control.

*Work Site Modification*
Employees should always seek ways to modify the layout of the dental treatment room and the way equipment is placed or designed to reduce ergonomic stress.

*Job Modification*
Based on the understanding of risk factors involved in dental tasks, job modifications may be helpful (i.e., treatment sequencing).

*Research*
Additional research is needed to understand ergonomic-related disorders, and their relation to specific work and work sites.

**NEEDLE SAFETY**

In November 2000, President Clinton signed into law the Needlestick Safety and Prevention Act. This new law reinforces an OSHA compliance directive that instructs employers to evaluate and implement appropriate, commercially-available, effective medical devices designed to eliminate or minimize occupational exposure to bloodborne pathogens. The new law, which became effective on 18 April 2001, also amends the Bloodborne Pathogens Standard. The following four areas are covered by the legislation: modification of definitions relating to engineering controls; revision and updating of the Exposure Control Plan; solicitation of employee input; and Recordkeeping.

*Definitions*
The revised standard expands the definitions of several terms already provided by OSHA in the compliance directive. Th directive states that employers who have employees with occupational exposure to bloodborne pathogens must consider and, when appropriate, use effective engineering controls, including safer medical devices, to reduce the risk of percutaneous injuries.

OSHA has modified the definitions of "engineering controls" which now includes "safer medical devices, such as sharps with engineered sharps injury protection and needleless systems." These two terms have been added to the revised standard. "Sharps with engineered injury protection" has been defined as "a non-needle sharp or a needle device used for withdrawing body fluids, accessing a vein or artery, or administering medications or other fluids, with built-in safety features or mechanism that effectively reduces the risk of an exposure incident." The term "needleless system" refers to "devices that do not use needles to collect bodily fluids or withdraw body fluids (after initial vascular access is established), administer medications or fluids, or perform any other procedure involving the potential for occupational exposure to bloodborne pathogens due to percutaneous injuries from contaminated sharps."

*Exposure Control Plan*
Employers must now implement safer medical devices that are appropriate, commercially-available, and effective. "Appropriate" safer medical devices are devices whose use based on reasonable judgment in individual cases, will not jeopardize patient or employee safety or be medically contraindicated." "Effective" safer medical device are devices whose use "based on reasonable judgment, will reduce the likelihood of an exposure incident involving a contaminated sharp." Employers should revise their Exposure Control Plan to show that they are actively reviewing these new safety devices.

*Employee Input*
Employers must solicit input from employees responsible for direct patient care when choosing effective engineering and work practice controls. The employer has the flexibility to solicit employee input "in any manner appropriate to the circumstances of the workplace." Solicitation of employee input should be documented in the Exposure Control Plan.

*Recordkeeping*
Recordkeeping requirements to the Bloodborne Pathogens Standard have been amended by requiring employers to maintain a Sharps Injury Log (for employers with 11 or more employees who are currently required to maintain the OSHA Form 200). This log is to serve as an aid in identifying high-risk areas, and to help evaluate devices as they are used in the practice. This log must contain, at a minimum, the type and brand of device involved in the incident, the work area where the exposure occurred, and an explanation of how the incident happened. OSHA does not specify the format of the Sharps Injury Log, but all information must be recorded and maintained in such a manner as to protect the confidentiality of the injured employee.

Beginning 1 January 2002, employers will be required to record sharps injuries involving contaminated objects on the new OSHA Form 300 (Log of Work-Related Injuries and Illnesses) and the OSHA form 301 (Injury and Illness Incident Report). These forms will replace the current 200 and 101 forms, respectively. Employers must maintain these records in a way that segregates or allows easy separation of sharps injuries from other types of work-related injuries or illnesses. The Sharps Injury Log must be maintained for five years following the end of the year in which a sharps incident occurs. Exposure Control Plans reviewed and updated after 18 April 2001 must reflect the requirements of the revised standard.

**LATEX SENSITIVITY**

*Introduction*
The first reports of allergic reactions to rubber gloves began in the early 1930s. Since then, with the implementation of Universal Precautions and increased glove use, a significant increase in reported reactions to latex has been seen. In the 1980s, the Occupational Safety and Health Administration (OSHA) and the Centers for Disease Control and Prevention (CDC) mandated that healthcare workers (HCWs) wear gloves during patient care to protect themselves and patients from cross-infection. Today, most HCWs wear gloves made of latex because latex has excellent physical characteristics including elasticity, tactility, barrier properties, tear resistance, and low cost.

Natural rubber latex (NRL) is a milky fluid derived from plants and is found in a variety of healthcare and consumer products. Recent government information indicates that 3 to 17 percent of HCWs and 1 to 6 percent of the general public are sensitive to latex (latex allergy). As of 1997, the Food and Drug Administration (FDA) has received over 2300 allergic reports associated with latex. More than 200 of these cases were associated with anaphylaxis, and 17 were fatal. At-risk individuals include those with spina bifida; HCWs; and people with a history of atopy (i.e., an inherited, immunological hypersensitive to common environmental antigens), multiple surgeries in early childhood, genitourinary anomalies requiring catheterization, or certain food allergies (e.g., banana, kiwi, avocado, and chestnuts).

There are three types of reactions to latex products: irritant contact dermatitis (ICD); allergic contact dermatitis (ACD), also known as Type IV Hypersensitivity; and Type I Hypersensitivity. Keep in mind that latex sensitivity is both a HCW safety issue and a patient safety issue.

*ICD*
Many HCWs (50 percent or more) have experienced ICD. It is a nonimmunologic process that damages the superficial layers of the skin, and is due to contact with a substance that challenges the skin. ICD is manifested as a sharp, defined reaction confined to the area of contact resulting in direct physical or chemical injury to skin cells. It is common among frequent users of both latex and synthetic (i.e., nonlatex) gloves. Symptoms include reddened, dry, irritated, cracked skin that stops at the glove cuff. Common factors for ICD include frequent handwashing with antimicrobial soaps, failure to completely rinse, irritation from powder, excessive perspiration, failure to dry hands, and exposure to certain chemicals such as disinfectants.

To treat ICD, HCWs should identidy the potential cause(s) of the problem. HCWs should review their daily handwashing routine first. Other possible corrective actions include selecting a different brand of latex glove (or using powder-free latex glove) or using a different lot of the same brand of glove.

*ACD*
ACD, known as Type IV Hypersensitivity, is also called delayed allergy because symptoms do not appear immediately after exposure. It is an immune-mediated inflammation of the skin. Chemicals added during the manufacturing process for both latex and synthetic products cause ACD. Scientific reports have noted over 200 chemical additives in latex products. Other chemicals such as antiseptics, adhesives, disinfectants and resins can also cause an ACD. Development is dependent upon individual susceptibility, exposure history, and the allergic potential of the chemical(s). ACD is not life threatening, but can result in permanent skin damage if left untreated.

ACD is limited to only contact areas and does not involve the entire body. The reaction produces an immune response followed 48-72 hours later by a red, itchy rash, which may result in vesicles or blisters. The reaction can take up to 4 days to heal with necrosis, scabbing, and sloughing of the affected epithelium. With repeated exposure, it can become a chronic condition.

Treatment involves a thorough history, clinical examination, and testing by a dermatologist. Diagnosis is confirmed by a positive skin reaction to test chemicals, called a patch test. This test involves using a standard series of test allergens on the upper back. The skin is then examined 24, 48, 72 and 96 hours later. Red, inflamed skin is indicative of a chemical allergy.

An important point to consider is that both ICD and ACD compromise skin integrity. This may allow NRL allergens (proteins) access to the body via skin breaks, increasing the risk of developing a Type I allergy. For HCWs, both ICD and ACD should be fully resolved before resuming patient care.

*Type I Hypersensitivity*
Type I Hypersensitivity is an immediate reaction and is commonly called latex allergy. It results from an immune reaction to one or more of the proteins found in NRL. Studies have shown that NRL contains more than 200 proteins, but not all are associated with latex allergy. Individuals can become sensitized to NRL by contact exposure to various NRL products including condoms, balloons, pacifiers, rubber toys, etc. The most common NRL products in dentistry are gloves, prophy cups, rubber dams, and orthodontic elastics. Exposure to NRL proteins can occur through cutaneous or percutaneous contact, aerosolized contact (respiratory contact), mucosal contact (eyes, nose, mouth, vagina, rectum), intraoperative exposure, and hematogenous exposure (stopcocks, rubber stoppers, intravenous contact).

Type I symptoms can involve the skin, mucous membranes, respiratory tract, gastrointestinal tract, and/or the cardiovascular system. Symptoms may develop quickly. Reactions can occur soon as 2-3 minutes after exposure, or as long as several hours. Reactions are more acute and may require emergency medical procedures. Early symptoms include itching and tingling at the contact site. This can be followed by more serious systemic symptoms of anaphylaxis including hives and respiratory symptoms (e.g., runny nose, sneezing, itchy eyes, and scratchy throat). Also commonly seen are facial swelling, conjunctivitis, nausea, abdominal cramps, bronchospasm, hypotension, and tachycardia. Anaphylaxis can result in death due to airway closure secondary to bronchospasm or laryngeal swelling, and it requires immediate medical attention.

The most serious manifestation of a Type I reaction (i.e., anaphylaxis) is caused by airborne allergens. NRL proteins can adhere to glove powder particles during the manufacturing process. These proteins can subsequently remain suspended in the air for prolonged periods when gloves are donned and removed. This causes particle aerosolization, which can result in respiratory and conjunctival exposure. In sensitized individuals, this exposure leads to coughing, sneezing, shortness of breath, respiratory distress, and anaphylaxis.

Treatment involves a detailed medical history by an allergist to identify risk factors, previous allergic reactions, or other related symptoms. Diagnosis is based on symptoms, medical history, and the presence of circulating antibodies to NRL. There are three antibody test methods: the skin prick test (SPT) with a source NRL, serum immunoanalyses, and use testing with a NRL product. A definitive diagnosis can be difficult to make due to the lack of standardization of these test methods.

The SPT is considered the most accurate diagnostic method, is easy to perform, provides quick results (within 15 minutes), and is highly sensitive. Serologic testing determines the amount of antibodies present in the serum, but is not as sensitive as the SPT, and can result in false negatives. In-use provocation testing involves exposing a patient to a NRL product for a specified time to measure the reaction. This test carries a greater risk of anaphylaxis, and so patients must be monitored closely.

*Regulations/Recommendations*
Regulatory agencies and professional organizations now recommend low-protein, powder-free NRL products to reduce the frequency and severity of latex symptoms, and to decrease the risk of future sensitization. The FDA has issued a ruling requiring labeling of NRL-containing medical devices (i.e., latex gloves) that contact living tissues. Also, the claim of hypoallergenicity must be removed from medical devices that contain NRL. These rulings were established in response to numerous reports of severe allergic reactions to a wide range of NRL-containing medical devices.

*Management*
Presently there is no cure for latex allergies. Available options include prevention, avoidance, and symptomatic treatment. Individuals with a documented latex allergy should practice latex-avoidance in all areas of their lives. Dental providers must implement strategies to minimize latex exposure when treating latex-allergic patients.

HCWs diagnosed with a Type I latex allergy should use non-latex alternatives (including gloves) which do not contain NRL proteins. Current choices for alternative gloves include vinyl, nitrile, neoprene, polyurethane, and thermoplastic elastomers. In addition, a powder-free latex products should be used to minimize aerosolized allergens. Employers should offer workers education, testing, and alternative glove materials.

*Protocol/Procedures*
Clinic policies should be developed that include identifying latex-allergic individuals and NRL-containing products and substitutes. The goal is to establish a controlled, "latex-safe" dental environment, which should include dental management of latex-allergic patients, provision for emergency drugs/equipment with non-NRL delivery, and emergency treatment of an allergic reaction to NRL.

*Identifying Patients*
A thorough medical history with screening questions can aid in identifying latex-allergic patients. If a dental provider feels that a patient s history suggests a possible allergic potential, a referral should be made to a dermatologist or allergist. The following are pre-treatment screening questions that can help to identify susceptible patients.

1. Do you have a history of allergies to drugs, food/fruits, adhesive tape, or latex products?
2. Have you ever experienced a severe allergic reaction?
3. Do you develop hives or itching after contact with rubber products?
4. Have your lips or tongue ever swollen following dental treatment?
5. [For HCWs] Have you recently developed evidence of asthma, breathing problems, itchy eyes, or a runny nose associated with work?

*Treatment of the Latex-allergic Patient*
Dental providers need to prevent latex exposure when treating latex-allergic patients. This includes no direct patient contact with latex products, including airborne contact. The following steps should be considered.

1. Take a thorough medical history.
2. Consult with the patient s physician.
3. Educate the staff on NRL-associated allergies.
4. Identify all NRL-containing products and devices in the operatory (contact manufacturer of products if questionable), and remove them from the treatment room to prevent accidental exposure.
5. Ensure thorough cleaning of the operatory, including changing ventilation filters to remove all powder.
6. Schedule the patient for the first appointment of the day to ensure airborne particles are at a minimum.
7. Wear synthetic gloves for treatment.
8. Use non-latex substitutes for patient care (i.e., rubber dam, prophy cups).
9. Be alert for signs/symptoms for an allergic reaction, and be prepared to treat complications.

*Treatment of Anaphylaxis*
The following steps should be taking if you suspect a latex anaphylactic reaction.

Stop allergen exposure.
Activate the Emergency Medical System.
Administer epinephrine.
Initiate basic life support.
Administer oxygen.
Maintain the airway and monitor the blood pressure.
Administer IV fluids, delivery antihistamines, and corticosteroids.
Transport to Emergency Room.

*Conclusion*
Increased glove use to protect against bloodborne pathogens has resulted in a greater number of glove-related reactions. Each reaction has specific causes, symptoms, and management criteria. The reactions can have potentially serious consequences for both the dental team and patients. Dental HCWs need to be knowledgeable about the signs, symptoms, and diagnosis of these conditions, and should consider way of reducing occupational exposure.

ICD and ACD, associated with both latex and synthetic gloves, share similar causes. Type I Hypersensitivity is unique in its association with latex proteins, physical symptoms, and severity of symptoms. Powder is a contributing factor for adverse skin reactions. It not only dries out the hands, but also acts as a carrier for aerosolizing chemicals/proteins, thereby indirectly increasing potential allergen exposure.

HCWs must develop strategies to manage latex-allergic patients. Practitioners must be able to screen accurately for latex allergy, refer patients for definitive diagnosis, and render treatment with avoidance of latex products. They should also be able to recognize and treat the complications of latex exposure.

Prevention through reduced exposure is essential. Choosing synthetic gloves or low-protein, low-chemical, powder-free latex is the first step in minimizing reactions. Early recognition and vigilance to avoid exposure to antigens are the best ways to ensure a safe dental practice for patients and dental staff.

**SKIN CARE**

The skin is responsible for protecting the body from physical injury and protection from microbial invasion. When the skin becomes damaged (i.e., dry skin), its ability to perform these functions is compromised. Dry skin occurs when the skin loses lipids. This allows moisture in the skin to travel to the surface and evaporate. This can result in external irritants and potentially pathogenic organisms entering the skin. Also, dry irritated skin discourages proper handwashing and may harbor potentially pathogenic organisms.

*Preventing Dry Skin*
Factors responsible for dry skin include the weather (cold weather and low indoor humidity), being older than 30, dietary deficiencies, some medications and medical conditions, frequent handwashing, and exposure to products with harsh ingredients or with pH levels above 7. Many of these contributing factors are beyond our control, but there are several ways to help prevent the dry skin from developing:

Wear gloves/warm clothes in cold weather.
Wash with warm (not hot) water.
Pat the skin dry instead of rubbing.
Wear protective gloves when cleaning or handling chemicals.
Use skin care products that are mild, pH balanced, and dermatologist tested.
Apply appropriate moisturizers often, preferably when the skin is damp.

*Treating Dry Skin*
Symptoms of dry skin include redness, flaking, itching, cracking, and fissuring. It is essential to begin treating dry skin as soon as possible to prevent symptoms from progressing.

Moisture can be added to the skin by soaking in warm water, and applying a lotion that contains water or humectants. Humectants are ingredients like glycerin that attract, retain, and hold moisture from the air. Because moisture added to the skin can evaporate quickly, moisturizers without barriers may need to be applied frequently.

Moisture can also be held in the skin by applying a barrier product that blocks water from leaving the skin surface. Such barriers include petrolatum, silicone, dimethicone, and mineral oil. Adding a barrier helps provide a environment conducive for skin repair, and may provide some protection to skin from irritants or other harmful substances. For severely dry skin, it may be helpful to soak in warm water for 10-15 minutes before applying the barrier product. For maximum benefit, wear cotton gloves or cotton socks over the barrier product while sleeping.

Some moisturizer products contain synthetic lipids, which penetrate the skin. These type products mimic skin lipids by attracting water into the skin and by helping to maintain the proper balance of oil and water in the skin.

If you self-treat and your dry skin does not resolve, consult with a healthcare provider for treatment.

**INFECTION CONTROL Q & A**

**Question:** I always wear gloves during patient treatment. Is handwashing really that important?

**Answer:** Yes, handwashing is the single most important procedure for preventing clinic-acquired infections. Hands of dental healthcare workers can carry bacteria, viruses, and fungi that are potentially infectious to them and their patients. Handwashing is recommended before and after situations in which hands are likely to become contaminated with blood, body fluids/secretions, or saliva. Also they should be washed when contacting contaminated items, instruments, or equipment. Always wash your hands before and after wearing gloves. Gloves are not a substitute for handwashing.

Question: When should gloves been worn in dentistry?

**Answer:** Gloves should be worn when there is reasonable likelihood of contact with blood or other potentially infectious materials (saliva), mucous membrane (intraoral), or nonintact skin; when performing vascular access procedures; and when handling contaminated items or touching contaminated surfaces. Gloves should be changed during a procedure if they become torn or punctured. It is important to wash your hands before donning and after removing gloves.

**Question:** What is the difference between deionization and distillation? Is it appropriate to use deionized

water in the separate water system of the dental unit?

**Answer:** Deionization is also referred to as deminieralization or ion exchange. This process removes calcium, magnesium, and other ionic impurities by using synthetic resins. These resins have an affinity for dissolved inorganic cations and anions, but they do not reduce bacteria levels.

With distillation, water is removed from the impurities rather than the impurities from the water. Water undergoes phase changes during the process, changing from a liquid to vapor and back to a liquid. This process removes most inorganic solids, all organics with a boiling point greater than water, and all bacteria and pryogens.

Based on this, it is inappropriate to use deionized water in the separate water system due to the inability of the process to satisfactorily reduce bacteria levels. However, deionized water is appropriate for use in autoclaves and in the dental laboratory. On the other hand, if the water distiller and storage container are properly cleaned, distilled water is appropriate for use in the separate water system.

**Question:** Could you discuss the importance of safety intravenous (IV) catheters?

**Answer:** Any sharp device can result in a percutaneous injury, but not all devices carry the same risk of bloodborne pathogen transmission. Those most likely to transmit diseases are blood-filled needles used for vascular access. Disposable needles are involved in more injuries than other devices, but rank third among devices causing high-risk injuries. The reason is because these devices are most often used to give injections (low-risk procedure) and not to withdraw blood.

The IV catheter stylet ranks first among blood-filled devices causing high-risk injuries. Studies have shown that safety IV catheters can significantly reduce injury rates. These devices provide a protective shield for the stylet before or during its withdrawal from the catheter. It is recommended that these devices be used in all healthcare facilities as soon as possible.

**Question:** Our clinic is contemplating purchasing a new surface disinfectant because it is cheaper than what we are presently using. The product we want to buy is a 70.5% ethyl alcohol solution. Would you recommend our clinic purchase this product?

**Answer:** No, alcohols generally do not make suitable surface disinfectants because they are ineffective in the presence of tissue proteins such as those found in blood and saliva. Also, alcohols are poor cleaners and evaporate rapidly, decreasing disinfection activity.